



App. No. 10/048,160  
Amdt. dated August 25, 2003  
Reply to Office action of March 26, 2003

**Amendments to the Claims:**

This listing of claims will replace all prior versions and listings of claims in the application:

**Listing of Claims:**

Claims 1-13 (canceled).

RECEIVED  
AUG 27 2003  
TECHNOLOGY CENTER R3700

B3  
Claim 14 (presently amended): A diaphragm pump comprising a two part casing formed of a front cover and a back cover, a diaphragm plate extending across the covers and being secured therebetween when [[wen]] the covers are fastened together, the diaphragm plate having a plurality of ~~similarly defined~~ circular regions, the front cover having substantially axially aligned inlet and outlet ports, each respectively leading to an inlet chamber, or alternatively, to an outlet chamber, each leading to mutually exclusive inlet and outlet chambers respectively, a valve housing securable inside the front cover and having defined therein an outlet dish valve seat with a correspondingly concave resilient outlet valve seated therein, the outlet dished valve seat ~~valve seating~~ having fluid passages therethrough, and a plurality of inlet valve seats, equal in number to the number of circular regions, each being similarly dished and having a correspondingly concave resilient valve seated therein, each inlet valve seat having fluid passages therethrough, the resilient outlet valve being in fluid communication with the outlet chamber and each said inlet valve ~~the inlet valves~~ being in fluid communication with the inlet chamber, and a wobble plate positioned in the back cover and having a central boss and a plurality of similar piston sections equal in number to the number

of circular regions on the diaphragm plate, the piston sections and circular regions being correspondingly secured together, the wobble plate being subject to nutating motion to cause reciprocating action by the circular regions and provide a pumping action, the wobble plate central boss is adapted to seat and hold ~~boss-seating and holding~~ a bearing, the bearing having been insert moulded in the boss with the boss having an inwardly-extending retaining flange over the bearing.



B3  
Claim 15 (previously added): A pump as claimed in Claim 14, wherein the circular regions of the diaphragm are each provided with an outstanding lug formation and the mating surfaces of the piston sections of the wobble plate are provided with complimentary shaped slots, the securement being formed when the lug formation of each region is engaged in the slot of the corresponding piston section.

Claim 16 (Previously added): A pump as claimed in Claim 15, wherein the lug formation of each diaphragm and the slot of each corresponding piston section is of cruciform shape.

Claim 17 (previously added): A pump as claimed in Claim 15 wherein the outer ends of the lug formation are of greater length than the slots to provide a locking means in the slots.

Claim 18 (previously added): A pump as claimed in Claim 16, wherein the outer ends of the lug formation are of greater length than the slots to provide a locking means in the slots.

Claim 19 (previously added): A pump as claimed in Claim 14, wherein a rear diaphragm support plate is provided in the back cover, the support plate having an equal number of similar apertures to the numbers of circular regions, each aperture having a walled surround, the circular regions fitting into respective apertures and being supported thereby.

B3

Claim 20 (previously added): A pump as claimed in Claim 14, wherein the casing is secured to an electric motor with its drive shaft connected via an eccentric to the bearing.

Claim 21 (previously added): A pump as claimed in Claim 19, wherein the casing is secured to an electric motor with its drive shaft connected via an eccentric to the bearing.

Claim 22 (previously added): A pump as claimed in Claim 20, wherein the casing has a mounting bracket with a series of mounting feet fitted thereto, the feet each being substantially ovoid in plan and of resilient material, the greater

dimensioned end having an upstanding headed stub pillar, each pillar mating in a open slot in the bracket, the slot being narrower at its open end to hold the respective foot in its slot.

Claim 23 (previously added): A pump as claimed in Claim 14, wherein the valve housing is fixed to the front cover by a screw.

Claim 24 (previously added): A pump as claimed in Claim 15, wherein the valve housing is fixed to the front cover by a screw.

Claim 25 (previously added): A pump as claimed in Claim 19, wherein the valve housing is fixed to the front cover by a screw.

Claim 26 (previously added): A pump as claimed in Claim 22, wherein the valve housing is fixed to the front cover by a screw.

Claim 27 (previously added): A pump as claimed in Claim 14, further comprising an integral pressure switch provided in the back cover with the diaphragm plate being provided with a fifth defined circular region, smaller than the others, the rear diaphragm support plate having a similarly shaped aperture with wall

surround to accommodate a micro-switch actuated by movement of the fifth circular region serving as a pressure switch pad, the electrical wires to the micro-switch being fed internally from the front face of the motor.

Claim 28 (previously added): A pump as claimed in Claim 15, further comprising an integral pressure switch provided in the back cover with the diaphragm plate being provided with a fifth defined circular region, smaller than the others, the rear diaphragm support plate having a similarly shaped aperture with wall surround to accommodate a micro-switch actuated by movement of the fifth circular region serving as a pressure switch pad, the electrical wires to the micro-switch being fed internally from the front face of the motor.

Claim 29 (previously added): A pump as claimed in Claim 19, further comprising an integral pressure switch provided in the back cover with the diaphragm plate being provided with a fifth defined circular region, smaller than the others, the rear diaphragm support plate having a similarly shaped aperture with wall surround to accommodate a micro-switch actuated by movement of the fifth circular region serving as a pressure switch pad, the electrical wires to the micro-switch being fed internally from the front face of the motor.

Claim 30 (previously added): A pump as claimed in Claim 20, further comprising an integral pressure switch provided in the back cover with the diaphragm plate being provided with a fifth defined circular region, smaller than the others, the rear diaphragm support plate having a similarly shaped aperture with wall surround to accommodate a micro-switch actuated by movement of the fifth circular region serving as a pressure switch pad, the electrical wires to the micro-switch being fed internally from the front face of the motor.

B3

Claim 31 (previously added): A pump as claimed in Claim 14, wherein the valve housing, on the same side as the inlet valve seats are positioned, is provided with a track leading from a hole exiting on that side and centrally provided in the outlet valve seat provided on the opposite side, the track mating with a corresponding track provided on the diaphragm plate, the mated tracks forming a passage between the hole and the fifth circular region whereby any fluid leaving the outlet chamber when under pressure through the screw travels along the passage and fills a void at the pressure pad on the opposite side of the diaphragm plate from the pressure switch causing activation of the micro-switch to stop the pump.

Claim 32 (previously added): A pump as claimed in Claim 19, wherein the valve housing, on the same side as the inlet valve seats are positioned, is provided with a track leading from a hole exiting on that side and centrally provided in the outlet valve seat provided on the opposite side, the track mating with a corresponding track provided on the diaphragm plate, the mated tracks forming a

passage between the hole and the fifth circular region whereby any fluid leaving the outlet chamber when under pressure through the screw travels along the passage and fills a void at the pressure pad on the opposite side of the diaphragm plate from the pressure switch causing activation of the micro-switch to stop the pump.

b3  
Claim 33 (previously added): A pump as claimed in Claim 22, wherein the valve housing, on the same side as the inlet valve seats are positioned, is provided with a track leading from a hole exiting on that side and centrally provided in the outlet valve seat provided on the opposite side, the track mating with a corresponding track provided on the diaphragm plate, the mated tracks forming a passage between the hole and the fifth circular region whereby any fluid leaving the outlet chamber when under pressure through the screw travels along the passage and fills a void at the pressure pad on the opposite side of the diaphragm plate from the pressure switch causing activation of the micro-switch to stop the pump.

---